

WHAT IS CLAIMED IS:

1. A method of treating a disorder in a mammal in need thereof comprising administering a therapeutically effective amount of a dimeric antibody to said mammal.
2. The method of claim 1 wherein said dimeric antibody comprises a plurality of monomeric subunits.
3. The method of claim 2 wherein at least one monomeric subunit comprises a modified antibody.
4. The method of claim 3 wherein said modified antibody has at least a portion of one constant region domain omitted.
5. The method of claim 4 wherein said modified antibody comprises a domain deleted antibody.
6. The method of claim 5 wherein said domain deleted antibody lacks a C_H2 domain.
7. The method of claim 2 wherein said monomeric subunits are non-covalently associated.
8. The method of claim 1 wherein said dimeric antibody comprises a homodimer.
9. The method of claim 1 wherein said dimeric antibody comprises a heterodimer.
10. The method of claim 1 wherein said dimeric antibody reacts with a tumor associated antigen.
11. The method of claim 10 wherein said tumor associated antigen is selected from the group consisting of CD2, CD3, CD5, CD6, CD7, MAGE-1, MAGE-3, MUC-1, HPV 16, HPV E6, HPV E7, TAG-72, CEA, I.6-Antigen, CD19, CD20, CD22, CD37, CD52, HLA-DR, EGF receptor and HER2 Receptor.
12. The method of claim 1 wherein said dimeric antibody is associated with a cytotoxic agent.
13. The method of claim 12 wherein said cytotoxic agent comprises a radioisotope.
14. The method of claim 13 wherein said radioisotope is selected from the group consisting of ⁹⁰Y, ¹²⁵I, ¹³¹I, ¹²³I, ¹¹¹In, ¹⁰⁵Rh, ¹⁵³Sm, ⁶⁷Cu, ⁶⁷Ga, ¹⁶⁶Ho, ¹⁷⁷Lu, ¹⁸⁶Re and ¹⁸⁸Re.
15. The method of claim 1 wherein said disorder is a neoplastic disorder.
16. The method of claim 15 wherein said neoplastic disorder is selected from the group consisting of relapsed Hodgkin's disease, resistant Hodgkin's disease high grade, low grade and

- intermediate grade non-Hodgkin's lymphomas, B cell chronic lymphocytic leukemia (B-CLL), lymphoplasmacytoid lymphoma (LPL), mantle cell lymphoma (MCL), follicular lymphoma (FL), diffuse large cell lymphoma (DLCL), Burkitt's lymphoma (BL), AIDS-related lymphomas, monocytic B cell lymphoma, angioimmunoblastic lymphadenopathy, small lymphocytic; follicular, diffuse large cell; diffuse small cleaved cell; large cell immunoblastic lymphoblastoma; small, non-cleaved; Burkitt's and non-Burkitt's: follicular, predominantly large cell; follicular, predominantly small cleaved cell; and follicular, mixed small cleaved and large cell lymphomas.
17. The method of claim 1 further comprising the administration of a chemotherapeutic agent.
18. The method of claim 18 wherein said chemotherapeutic agent comprises Rituxan.
19. The method of claim 1 wherein said disorder is an immune disorder.
20. A kit useful for the treatment of a mammal suffering from or predisposed to a disorder comprising at least one container having a dimeric antibody deposited therein and a label or an insert indicating that said dimeric antibody may be used to treat said disorder.
21. The kit of claim 20 wherein said dimeric antibody comprises a plurality of monomeric subunits.
22. The kit of claim 21 wherein at least one monomeric subunit comprises a modified antibody
23. The kit of claim 22 wherein said modified antibody has at least a portion of one constant region domain omitted.
24. The kit of claim 23 wherein said modified antibody comprises a domain deleted antibody.
25. The kit of claim 24 wherein said domain deleted antibody lacks the C_H2 domain.
26. The kit of claim 21 wherein said monomeric subunits are non-covalently associated.
27. The kit of claim 20 wherein said dimeric antibody comprises a homodimer.
28. The kit of claim 20 wherein said dimeric antibody comprises a heterodimer.
29. A dimeric antibody comprising a plurality of monomeric subunits wherein said monomeric subunits are non-covalently associated.
30. The dimeric antibody of claim 29 wherein at least one monomeric subunit comprises a modified antibody
31. The dimeric antibody of claim 30 wherein said modified antibody has at least a portion of one constant region domain omitted.

32. The dimeric antibody of claim 31 wherein said modified antibody comprises a domain deleted antibody.
33. The dimeric antibody of claim 32 wherein said domain deleted antibody lacks a C_H2 domain.
- 5 34. The dimeric antibody of claim 29 wherein said dimeric antibody comprises a homodimer.
35. The dimeric antibody of claim 29 wherein said dimeric antibody reacts with an autoantigen.
36. The dimeric antibody of claim 29 wherein said dimeric antibody reacts with a tumor associated antigen.
- 10 37. The dimeric antibody of claim 36 wherein said tumor associated antigen is selected from the group consisting of CD2, CD3, CD5, CD6, CD7, MAGE-1, MAGE-3, MUC-1, HPV 16, HPV E6, HPV E7, TAG-72, CEA, L6-Antigen, CD19, CD20, CD22, CD37, HLA-DR, EGF receptor and HER2 Receptor.
38. The dimeric antibody of claim 29 wherein said dimeric antibody is associated with a cytotoxic agent.
- 5 39. The dimeric antibody of claim 38 wherein said cytotoxic agent comprises a radioisotope.
40. The dimeric antibody of claim 39 wherein said radioisotope is selected from the group consisting of ⁹⁰Y, ¹²⁵I, ¹³¹I, ¹²³I, ¹¹¹In, ¹⁰⁵Rh, ¹⁵³Sm, ⁶⁷Cu, ⁶⁷Ga, ¹⁶⁶Ho, ¹⁷⁷Lu, ¹⁸⁶Re and ¹⁸⁸Re.
41. A method for forming dimeric antibodies comprising the steps of:
- 20 culturing prokaryotic or eukaryotic host cells comprising DNA sequences encoding at least one modified antibody whereby the host cells produce a plurality of modified antibodies;
- allowing the plurality of modified antibodies to non-covalently associate whereby dimeric antibodies are formed; and
- 25 recovering said dimeric antibodies from the host cell culture.
42. The method of claim 41 wherein said modified antibody has at least a portion of one constant region domain omitted.
43. The method of claim 41 wherein said modified antibodies comprise domain deleted antibodies.
- 30 44. The method of claim 43 wherein said domain deleted antibodies lack the C_H2 domain.

45. The method of claim 41 wherein said dimeric antibodies comprise homodimers.
46. The method of claim 41 wherein said dimeric antibodies comprise heterodimers.
47. The method of claim 41 wherein said dimeric antibodies react with a tumor associated antigen.
- 5 48. The method of claim 41 wherein said tumor associated antigen is selected from the group consisting of CD2, CD3, CD5, CD6, CD7, MAGE-1, MAGE-3, MUC-1, HPV 16, HPV E6, HPV E7, TAG-72, CEA, I.6-Antigen, CD19, CD20, CD22, CD37, CD52, HLA-DR, EGF receptor and HER2 Receptor.
49. The method of claim 48 wherein said tumor associated antigen is TAG-72.
- 10 50. The method of claim 41 wherein said host cells comprise CHO cells.